

## MISCELLANEOUS.

*On the Body-cavity of the Sedentary Annelids and their Segmental Organs; with some Remarks on the Genus Phascolosoma.* By M. COSMOVICI.

THE general body-cavity of the sedentary Annelids is divided into several compartments by diaphragms, which sometimes exist only in a portion of the cephalothoracic region (*Arenicolæ*, *Terebellæ*, *Clymenicæ*), sometimes throughout the length of the body (*Serpulidæ*); and then each segment has a cavity more or less independent of its neighbours. There are also divisions in the opposite direction. In sections there are seen a central cavity filled by the digestive tube, and two lateral ones separated from the former by muscular bands in the form of oblique diaphragms. A communication exists between all the cavities through the interstices of the fibres of the partitions. The lateral cavities contain the feet with their retractor muscles and the segmental organs: these are the *pedal cavities*.

In *Chaetopterus pergamentaceus* the arrangement of the cavities in the three vesicular segments is interesting. The median cavity, containing the digestive tube and the genital glands, does not communicate with the lateral cavities, which are occupied by the reno-segmental organs, except by the segmental pavilion which opens in the wall of separation.

In the *Clymenicæ* the *corpora Bojani* are very long; and at their anterior extremity the segmental organs are attached. After the eleventh segment there are no longer any renal bodies, and in their place there is a plexus of blood-vessels of remarkable abundance. The position of these networks is such that we may say that they represent *so many corpora Bojani formed solely by their vascular framework*.

The ovum of these animals is remarkable for the separation into two parts of the vitelline mass; one of these, the larger one, is formed of large granules, the other of very small ones. In the latter is situated the germinal vesicle and the spot, which becomes strongly coloured by picrocarminate.

*Pectinaria belgica* exhibits first a pair of very large *corpora Bojani*, and then two pairs furnished with segmental organs. The genital gland is on the median line, on each side of the supranervous vessel. The animal is as transparent as glass; and notwithstanding this the segmental organs cannot be perceived. It is curious that in less transparent animals these organs have nevertheless been observed by translucence and figured.

With regard to the segmental organs in the Errant Annelides, we find a pair of them in each segment, with a contorted tube having an internal pavilion and an opening outwards. In the *Serpulidæ* (a family very rich in genera), among the sedentary forms, the same thing is met with. Lastly, in all the other Sedentaria we find the segmental organs sometimes free, sometimes annexed to the *corpora*

*Bojani*, and in the majority of cases we may say that the segmental organs are independent of those bodies.

Hitherto we have been acquainted with three species of *hermaphrodite Spirorbes*; a fourth must be added, namely *Spirorbis communis*, which abounds at Roscoff.

In the group Gephyrea, in *Phascolosoma vulgare*, we find, on the anterior part of the two long blackish sacs, a tube furnished with a pavilion with two broad ciliated lips. The structure of the sacs shows them to be renal bodies, to which the segmental organs are annexed. The genital gland, male or female, is situate at the base of the posterior pair of the retractor muscles of the proboscis. The racemose gland is attached to an elastic thread, which is probably a blood-vessel. The ovum is remarkable for the presence of cilia at the surface of the vitelline membrane, which, when observed in front, appears finely striated.

In the subintestinal blood-vessel, in the midst of the elliptical blood-globules, we find encysted trematodes, which are carried along even into the papillæ of the proboscis, by the cilia with which this vessel is furnished. The above-mentioned papillæ appear to play a great part in respiration; in fact the whole circle is in communication with the circulatory apparatus. The globules ascend along the walls and descend by the centre of the papilla. Processes of the walls in the interior of the papillary cavity cause the globules to remain a certain time in contact with the delicate wall of these organs, and thus facilitate an exchange of gases. This may explain why the animal, when quiet in a trough filled with sea-water, exerts its proboscis every moment.—*Comptes Rendus*, May 26, 1879, p. 1092.

*Morphological Notes on the Limbs of the Amphiumidae, as indicating a possible Synonymy of the supposed Genera.* By JOHN A. RYDER.

Little attention has apparently been given to the comparative history of the limbs of the known species of *Amphiuma*. Very young specimens do not seem to have been usually collected for museums. I have had the opportunity to study such a series, varying from 6 to 8 inches in length, and about  $\frac{1}{4}$  inch, or a little more, in diameter; they were obtained in the vicinity of Biloxi, Mississippi, and are the property of the Smithsonian Institution at Washington.

From these it appears that the digital elements of the limbs are variable, or liable to variation, in the same individual; so that in some the number of digits (two) is characteristic of *Amphiuma*, and in others (three) they are characteristic of *Muraenopsis*. This blending of the characters of the two genera may be illustrated as follows, indicating the number of digits on each limb by numerals arranged in fours, the first pair representing the digital formula of the fore limbs, thus:—(1)  $\frac{2}{3} \frac{3}{3}$ ; (2)  $\frac{2}{2} \frac{3}{2}$ ; (3)  $\frac{3}{3} \frac{3}{3}$ ; and (4)  $\frac{2}{2} \frac{2}{2}$ ; there was also a form which exhibited no outward indication of toes on the front pair of limbs, the digits being enclosed in a com-